

AMEDEO CERUTI

Chemical Engineer

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EDUCATION

- Sep. 2019 – Oct. 2021 **M. Sc. Chemical Engineering,**
Technical University of Munich (TUM) – Munich, Germany
- 2014 – 2019 **B. Sc. Chemical Engineering,**
Polytechnic University of Catalonia BarcelonaTech (UPC) – Barcelona, Spain

EXPERIENCE

- Oct. 2021 – Mar. 2022 Researcher, **Sustainable Process Systems Engineering Lab (SUPERlab ETH Zürich)** – Prof. Guillén Gosálbez
- Topic: Sustainable chemical process systems engineering.
 - Simulation, optimization and environmental impact assessment of chemical product synthesis routes.
- May 2021 – Sep. 2021 Research Project, **Chair of Energy Systems (ES TUM)** – Prof. Spliethoff
- Topic: Entrained flow gasification reactor modelling with MATLAB.
 - OOP implementation of a solid-gas pyrolysis model with heat and mass transfer, improving over 78 % of required CPU clock time.
- Nov. 2020 – May 2021 Master Thesis, **Chair of Process Systems Engineering (AVT RWTH Aachen University)** – Prof. Mitsos
- Topic: Bayesian optimization und Diffusion Maps for autonomous decision making in chemistry.
 - Single-, multi-objective and constrained optimization of reaction systems with data-driven machine learning methods with python.
 - Cooperation with research groups of RWTH Aachen, University of Cambridge and Johns Hopkins University.
- Feb. 2020 – Mar. 2021 Student Research Assistant, **Institute for Machine Tools and Industrial Management (IWB TUM)** – Prof. Reinhart
- Developed and optimized cell finishing processes for novel Lithium-ion batteries, researched with both model-based and experimental methods.
 - Co-authored a conference paper for the *54th CIRP Conference on Manufacturing Systems* (accepted as of June 2021).

May – Sep. 2020	<p>Research Project, Chair for Technical Chemistry 1 (TC1 TUM) – Prof. Hinrichsen</p> <ul style="list-style-type: none"> Modelled a three-phase chemo-enzymatic reaction system for the epoxidation of oleic acid and its downstream process.
Feb. – June 2019	<p>Bachelor Thesis, Isophytol Cluster (BASF) – Ludwigshafen, Germany</p> <ul style="list-style-type: none"> Title: „<i>Application of a soft sensor for distillate composition estimation to a dividing wall column control system</i>“. Applied data-driven models to a dividing wall distillation column.
Oct. 2018 – Feb. 2019	<p>Research Internship, Cetaqua – Water Technology Centre (SUEZ) – Barcelona, Spain</p> <ul style="list-style-type: none"> Developed an indicator framework to assess the circular economy of the water cycle in Spanish municipalities. Calculated the carbon footprint of the company according to ISO 14064.
Jul. – Oct. 2018	<p>Internship, Innovative and Prototype Solutions (BASF) – Ludwigshafen, Germany</p> <ul style="list-style-type: none"> Automated design and multi-objective optimization of pressure vessels in accordance with DIN EN 13445 and AD-2000.

LANGUAGES

Spanish, German, Italian, Catalan	First language
English	Proficient

SOFTWARE SKILLS

Languages	Python (incl. pytorch), MATLAB, R, VBA
CAD	SolidWorks, Inventor
Optimization	MAiNGO, Pyomo, GAMS, SIEMENS HEEDS
CAE	Aspen Plus, ANSYS, CAPE-OPEN interface standard

OTHER PROJECTS

2020	Attended „ <i>Gaussian Process Summer School</i> “ at Sheffield University.
2019	Organized the „ <i>PSE Summer School</i> “ in Barcelona, Spain.
2017-2018	President, UPC AIChE Student Chapter
2017	Attended the „ <i>10th World Congress of Chemical Engineering</i> “ in Barcelona, Spain
2014-2016	Professional Water Polo player in Spain